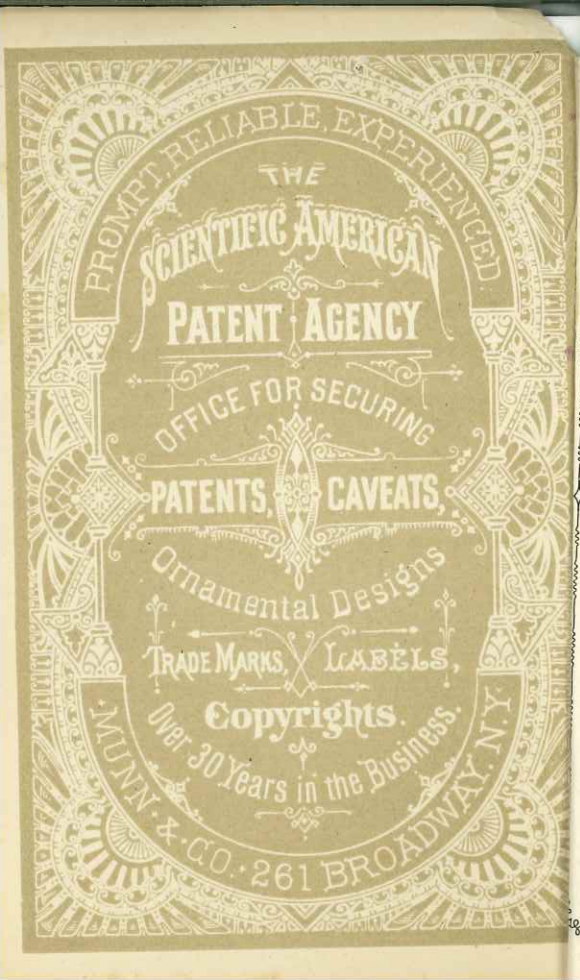
THE SCIENTIFIC AMERICAN HAND BOOK

MUNN & CO. NEW YORK.

SCHUMACHER & ETTLINGER LITH. 32 BLEECKER ST. N.Y.



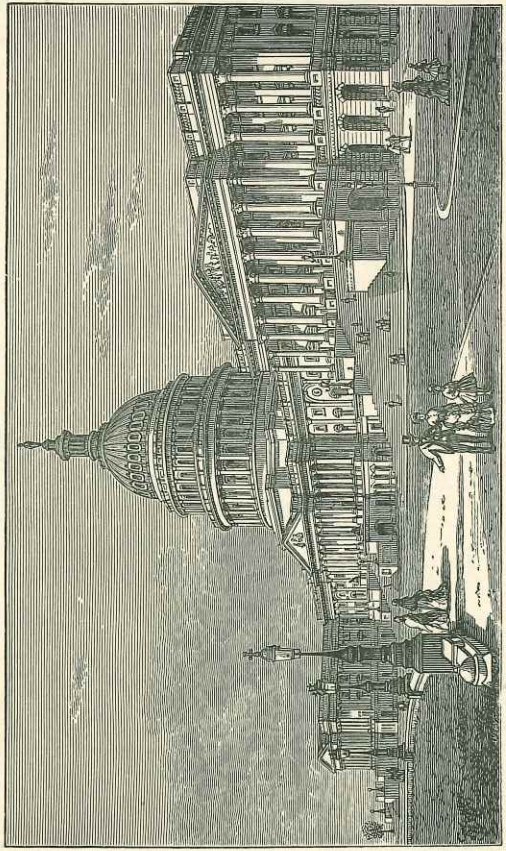
THE

SCIENTIFIC AMERICAN

HAND-BOOK.

A TREATISE RELATING TO PATENTS, CAVEATS, DESIGNS, TRADE-MARKS, COPYRIGHTS, LABELS, ETC.

NEW-YORK:
PUBLISHED BY MUNN & CO.
At the Office of the SCIENTIFIC AMERICAN,
NO. 261 BROADWAY.



THE CAPITOL OF THE UNITED STATES, AT WASHINGTON—(See page 36).

CAN I OBTAIN A PATENT?

To one who has made an invention or discovery, the first inquiry that suggests itself is, "Can I obtain a Patent?" If so, "How shall I proceed? Whom shall I consult? How much will it cost?"

The quickest way to settle these queries without expense, is to write to us (MUNN & Co.) describing the invention. Send us also a small sketch. Never mind your inexperience. Nicety of writing or drawing is not essential; all we need is to get *your idea*. Do not use pale ink. Be brief. Send stamps for postage.

We will immediately answer and inform you whether or not your improvement is probably patentable; and if so, give you the necessary instructions for further procedure. Our long experience enables us to decide quickly. For this advice we make *no charge*.

All who desire to consult us in regard to obtaining patents, are cordially invited to do so. We shall be happy to see them in person at our office, or to advise them by letter. In all cases, they may expect from us a careful consideration of their plans, an honest opinion, and a prompt reply.

Address all letters to MUNN & Co., office of the "Scientific American," 261 Broadway, New-York.

What security have I that my communications to MUNN & Co. will be faithfully guarded and remain confidential?

Answer.—You have none except our well-known integrity in this respect, based upon a most extensive practice of thirty-five years' standing. Our clients are numbered by hundreds of thousands. They are to be found in every town and city of the Union. Please to make inquiry about us. Such a thing as the betrayal of a client's interests, when committed to our professional care, never has occurred, and is not likely to occur. All business and communications intrusted to us are kept *secret and confidential*.

HOLD THE FORT.

IF you have made an invention for which you desire to secure a patent, but lack the necessary funds, do not for that reason be so foolish as to give or to throw away the discovery; do not, as is so commonly the case, promise or convey a half or any undivided portion of the improvement. If you are pinched for money you can generally, by patience and perseverance, obtain the use of the small sum required, by explaining the merits of the invention to intelligent, reliable persons in your vicinity. Brace up and try. No one will be likely to help you unless you ask; and you should keep asking until you find your man. To the party who is disposed to make the desired loan, the grant of a privilege for a town or county will generally be a satisfactory recompense, especially if he believes that it will really assist you in the further development of your invention. The following conveyance will, in general, be ample:

"Whereas I, Richard Roe, of Wyoming, County of Mohawk, State of New-York, have invented a new and useful improvement in musical instruments, for which I am about to apply for letters-patent; and whereas, John Doe, of Wyoming, New-York, hath advanced to me the sum of one hundred dollars toward the expenses of said patent:

"Now this indenture witnesseth, that for and in consideration of said payment to me made, I do hereby grant and convey to the said John Doe, his heirs or assigns, a license to make, use, and sell the invention, within the limits of the County of Mohawk, State of New-York, for and during the full end of the term for which said letters-patent are or may be granted.* Witness my hand and seal, this first day of January, A.D. 1877.

"In presence of RICHARD ROE."
"W. LOE."

* If further inducement is desirable, the following may be inserted:
"And I do hereby further agree, that all of the net profits by me in any manner made or received from the said invention and patent shall belong to and shall be delivered unto the said John Doe, until he shall have received back the said sum of one hundred dollars, with lawful interest thereon."

CAVEATS.

THE filing of a Caveat is sometimes of great importance, as it may be quickly done, and affords *immediate protection* against the issue of a patent, without the knowledge of the Caveator, to any other person for the same invention. The object of a Caveat is to give the inventor time to test and perfect his discovery. Should a competitor apply for a patent for the same invention, the Caveator is officially notified, and called upon to file in his application for a patent. The existence of a Caveat is one of the evidences of priority of invention. A Caveat runs for a year, and can be extended from year to year. Caveats can only be filed by citizens of the United States, and aliens who have resided here one year and have declared their intention to become citizens: All Caveats are secret. No one can see or obtain a copy of a Caveat without the order of the Caveator. A Caveator can use the stamp, "Caveat filed;" and such stamp sometimes assists in selling an article, or securing trade.

But the filing of a Caveat does not secure any *exclusive* right of sale. The Patent secures that right. The filing of a Caveat has nothing to do with the grant of a Patent. The Government makes no search as to novelty when a Caveat is filed. No portion of the money paid for a Caveat applies toward the Patent.

A Caveat consists of a Petition, Specification, Drawing, and Affidavit of Invention. To be of any value, these papers should be carefully drawn up, and the invention explained as fully as possible. No model is required. Our facilities enable us to prepare Caveat papers with great dispatch. When specially desired, we can have them ready to send to the applicant, for signature and affidavit, by return mail.

The whole expense to file a Caveat is generally $25, of which the official fee is $10, and we generally charge $15 to prepare the papers and attend to the business. On filing the Caveat in Washington the Patent Office issues an Official Certificate. To prepare Caveat papers, all that we need is a sketch, drawing, or photograph, and description of the invention, with which remit fees as above. Remit by draft or postal order to MUNN & CO., 261 Broadway, New-York.

THE SCIENTIFIC AMERICAN OFFICE, NEW-YORK—(See page 38).

HOW TO APPLY FOR A PATENT.

If the invention is simple, the whole cost to apply for a patent is $40,* and when allowed, $20 more are payable, making $60 in all.† The applicant has six months in which to pay the last installment of $20, after the patent is allowed. If the invention is complicated, the costs are somewhat increased, because the preparation of the drawings and specifications involves extra labor.

Under the patent laws, all persons, citizens and foreigners, pay the same official fees. There is no distinction as to nationality. Patents are also granted to women and minors; also to the executors or administrators of deceased inventors. The patent is granted for 17 years, during which time the patentee enjoys the full and exclusive right to make, use, and sell the invention, and grant rights, licenses, or privileges.

In order to apply for a patent, all that is necessary is to send a model of the invention to Munn & Co., by express, prepaid, with an explanation of the merits and working of the invention. Never mind spelling or grammar, but be very particular to give your ideas in full about the invention. Describe its intended working, and mention all the advantages that you can think of. This statement is always of assistance to us in preparing the specification and drawings. Also remit $15 on account, and give the inventor's full name, middle name included. We will then prepare the drawings and specification, and send the latter to you for examination and signature. See page 12 about model.

Do not put the money in the box with the model, for it is liable to be stolen. Remit by express, postal order, check, or draft, to order of Munn & Co., 261 Broadway, New-York.

If it is not convenient to furnish a model, then send photos or sketches of the invention, illustrating every part so fully that we cannot mistake your ideas. We prefer the model, but it is not now required by the Patent Office, except in special or complicated cases.

*If a patent is not granted, the applicant loses this cost of making the application.

†Of this sum the first Government fee is $15, our (Munn & Co's) charges, $25, and the second Government fee is $20, making $60 in all. When an appeal is required, there are additional expenses. See page 9.

HOW WE DO THE BUSINESS.

ON the reception of the description and the first payment of $15, the case is duly registered upon our books, and the application proceeded with as fast as possible. When the documents are ready we send them to the inventor by mail, for his examination, signature, and affidavit, with a letter of instruction, etc. Our charges for preparing the case are then due and will be called for. On return of the papers to us, the case will be presented to the Patent Office, and as soon as the patent is *allowed*, the applicant will be notified to remit the last installment of the Government fee, namely, $20, and the patent will then be printed and issued.

In addition to the above service, our patron receives, gratis, a notice in THE SCIENTIFIC AMERICAN, descriptive of the merits of the new patent, giving also his name and address. *We print and distribute about forty thousand copies of this notice* without a penny of cost to our client. This publication is of immense value to the patentee in advertising his new invention, and assisting to bring it promptly to the attention of purchasers. Were he to do this printing himself, it would cost him, by the most economical method, say on the backs of postal-cards, over five hundred dollars. The printing alone would cost him fifty dollars, and the cards ten dollars per thousand; and the cost of addressing must be added.

No patent agency in the world does so much for its clients as ours; and for that reason none so fully commands public confidence or enjoys so great a share of patronage.

Persons who do business with us will be notified of the progress of their application in the Patent Office, when it is possible for us to do so. We do not require the personal attendance of the inventor, unless the invention is one of great complication; the business can be done as well by correspondence.

We have an extensive branch house in Washington (see engraving, page 14), employing a corps of skilled assistants, and we make it our special duty to watch over the cases of our clients while they are before the Patent Office. If the examining officer objects to the grant of a claim, needs personal explanations, or requires amendments, we examine the references and make the amendments, if we deem them proper, so as to secure the allowance of our client's patent as soon as possible. We make no additional charge for these services.

The average time required to procure a patent is six weeks. Sometimes, owing to delay on the part of the officials, the period is extended. We always push forward our cases *as rapidly as possible.*

When the invention consists of a process or new article of manufacture, or a new composition, samples of the article must be furnished, and a minute detail of the mode of production given.

New medicines or compounds, and useful mixtures, recipes, etc., may be patented. A minute statement must be given of the exact proportions, method, and ingredients used in making a given quantity of the new article. The expenses to apply for a patent on a new composition or medical compound are ordinarily $40; when the patent is allowed, $20 more; total expense, Government fees included, $60.

APPEALS.

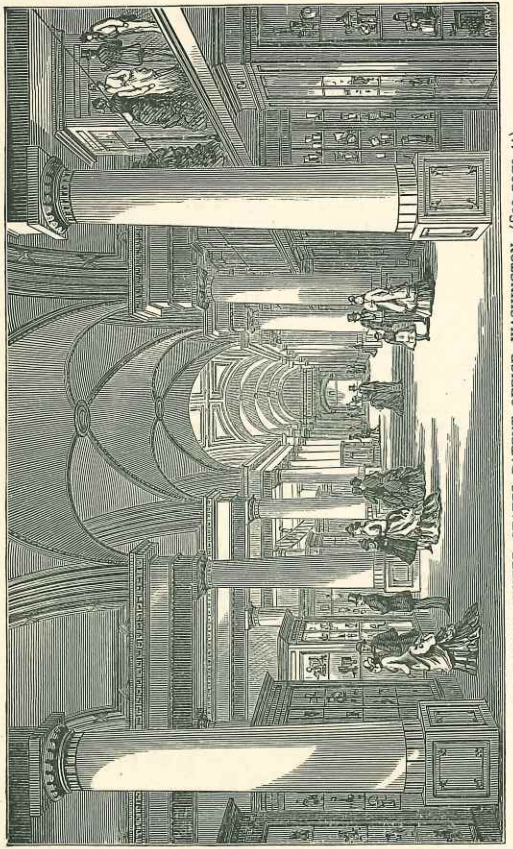
WHEN the examiner refuses to allow a patent, and finally rejects the case, we report the fact to our client, and inform him as to the probabilities of obtaining a reversal of the examiner's decision by appeal.

Three appeals are allowed, namely: to the Examiners-in-Chief, to the Commissioner of Patents, to the Supreme Court of the District.

First Appeal.—The Government fee payable by the applicant, on making an appeal to the Examiners-in-Chief, is $10. Our charges for preparing and conducting this appeal are very moderate, and in part contingent upon success.

Second Appeal.—From the decision of the Examiners-in-Chief an appeal may be taken to the Commissioner of Patents. Government fee, $20.

Third Appeal.—From the decision of the Commissioner of Patents an appeal may be taken to the Supreme Court of the District of Columbia.



MODEL-HALL, UNITED STATES PATENT OFFICE, WASHINGTON—(See page 44).

THE PRELIMINARY EXAMINATION.

IF we are not entirely satisfied that our correspondent's idea is patentable, we advise him to let us make a Preliminary Examination. This consists of a *special search*, made at the U. S. Patent Office, Washington, through the medium of our house in that city, to ascertain whether, among all the thousands of patents and models there stored, any invention is noticed that will probably prevent the grant of a patent. On the completion of this special search, we send a *written report* to the party concerned, with suitable advice. Our charge for this service is five dollars.

In making this search we do not guarantee that none of the patents will be overlooked, as the number is enormous; and we do not guarantee that a patent will be granted even if the Preliminary Report is favorable. But in general, if the report is unfavorable, the applicant will be saved all further expense; while, if favorable, he will be enabled to modify or enlarge his claims.

In offering to make this examination for five dollars, our correspondents must bear in mind that we here refer only to the question of the *patentability* of the invention, not to infringements or other questions. Will it pay? Does it infringe? See page 26 for reply.

All that we need for a preliminary examination is a brief description and sketch sufficient to enable us to get an idea of the invention.

The fee paid for preliminary examination does not go toward paying for the patent.

Where there is any doubt about the patentability of an invention, the prudent way for the applicant is to order a preliminary examination. This we can quickly make, as we employ, for the purpose, a corps of experienced examiners at Washington.

More than one million copies of this little book have so far been printed. Small as it appears, it contains a large amount of practical information concerning patents, and meets the general wants of authors and inventors better than anything of the kind ever published. There is hardly an inquiry concerning the privileges of authors and patentees, but will be found answered in some part of the work.

OF THE MODEL OR DRAWING.

THE Patent Office does not require that a model shall be furnished in order to apply for a patent; but after the application is made, the office will call for a model if deemed necessary.

The rules require that clear and well-executed drawings shall be filed, as part of the application, showing exactly what the invention is and how it operates, in all its details. The official drawings and specifications are prepared by us, MUNN & CO.

In order to assist us in preparing the proper specifications and drawings for the patent, we rely upon the applicant to furnish to us, in the first instance, either a small model or photographs, or such clear sketches of all the details of his invention that we cannot mistake his ideas respecting the construction. In general, unless the applicant can draw pretty well, it will be better for him to send us a small model, representing either the whole invention or the most important parts thereof, so that we may have a clear understanding of the arrangement and construction of the parts. The applicant should take especial pains to *explain and show to us fully* everything pertaining to his invention. If he neglects this, he simply neglects and is likely to damage his own interests. If a model is sent, it may be quite small, and cheaply made—whittled out in wood will do. It matters but little how made or of what materials, so that it represents the invention. Some persons waste time and money in preparing large models, say twelve inches square, when a size of one inch will do just as well. The smaller, the better. The model may be sent by mail, post-paid, at the rate of one cent an ounce. If boxed, do *not* nail or screw the box, but tie it. Do not put any writing in the box or on the model. Violation of these rules compels the Post Office authorities at New-York to collect letter postage, or six cents an ounce before delivery.

In forwarding the model, never place money in the box therewith, as it is liable to be stolen. Remit the money by postal order, check, or draft, to order of MUNN & CO. Send the model by mail or express, prepaid, addressed MUNN & CO., 261 Broadway, New-York.

It is not necessary to work a U. S. patent within any specific period, in order to maintain its validity. The patent is granted for seventeen years, and remains valid for that period, whether it is worked or allowed to sleep.

A patent cannot be extended unless a special act of Congress is passed in each case.

If any of our readers receive more than one copy of this little book, they will do us a favor by handing the extra copy to some friend or neighbor who is interested in things mechanical or scientific.

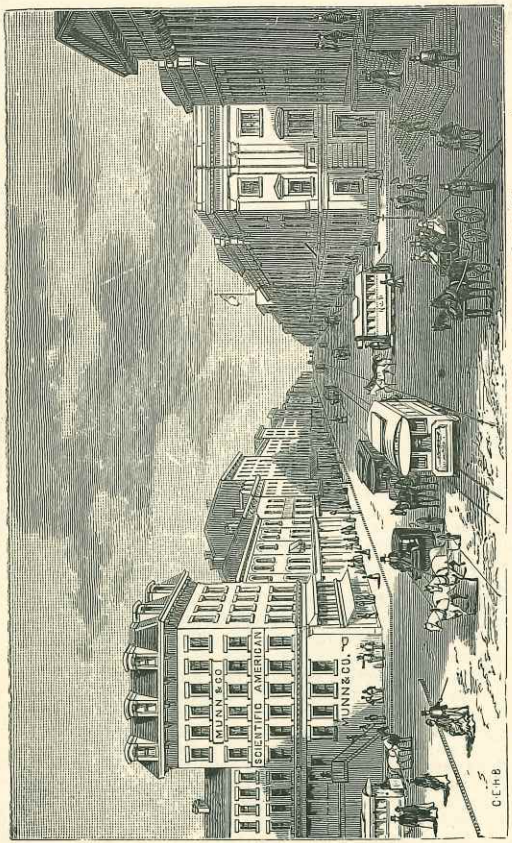
GOING TO WASHINGTON.

SOME inventors suppose, very naturally, that if personally present in Washington, they can get their cases through more expeditiously, or command other important facilities. But this is not so. The journey to Washington is usually a mere waste of time and money; but, notwithstanding, some persons prefer to go. A good agent must be employed after the inventor gets there. No one can possibly have facilities or influence superior to our own; a very large portion of the entire business of the Patent Office passes through our hands; and we have an office in Washington, charged with the especial duty of watching over and pressing forward the interests of our clients.

The Patent Office does not prepare patent papers, or make models. These must be provided by the applicant or his attorney, according to law, otherwise his claim will not be considered.

The law especially requires that all documents deposited in the Patent Office shall be correctly, legibly, and clearly written, and that the drawings shall be of a specified size, and executed in an artistic manner.

Persons who visit Washington in person can have all their patent business promptly attended to, by calling at MUNN & CO'S BRANCH SCIENTIFIC AMERICAN OFFICE, corner of 7th and F streets, opposite the Patent Office. (See engraving on page 14.)



BRANCH OFFICE OF THE SCIENTIFIC AMERICAN, AT WASHINGTON—(See page 40).

RENEWAL OF ALLOWED CASES.

WHEN an application for a patent has been officially examined and allowed, the applicant is notified, and requested to pay in the final Government fee of $20; the patent will then be printed and issued. The printing generally takes three weeks' time after the final fee is paid.

Six months' time is given from the date of allowance, for the payment of the final fee; after which time, if the fee is not paid, the patent will be withheld, and cannot be revived except by making a new application, and paying a new initial fee; which can be done at any time within two years from the expiration of the six months above mentioned. We (Munn & Co.) have had much success in the renewal of allowed cases.

INTERFERENCE OF PATENTS.

IF the applications of two or more individuals are found by the Patent Office to contain claims for the same invention, such applications, if the device is held to be patentable, will be officially adjudged to interfere. Notices will then be given to the applicants to take the evidence of witnesses touching the date when the contestants first made the invention. The Patent Office will examine the testimony, and issue the patent to the prior inventor.

If any one applies for a patent, and it appears that a patent has already been granted to another person for the same thing, the applicant may ask for a declaration of Interference. Testimony as to date of invention will then be received by the Office; and if the new applicant proves priority he will receive a patent.

The proceedings and arguments in Interference cases are governed by legal rules, and the services of experienced attorneys are generally required. During the thirty-five years of our professional career, we (Munn & Co.) have successfully conducted many Interference cases, taking testimony in all parts of the country. Charges very moderate. Address MUNN & CO., 261 Broadway, New-York.

ASSIGNMENTS OF PATENTS.

THE inventor or author may sell and assign his invention either before he has applied for the patent, or after the patent has been applied for, or after the patent has been issued. He may sell or assign any portion, such as a town, county or state right. If assigned before the patent is granted, the purchaser will enjoy the right under the patent whenever it is issued.

The deed of assignment of a patent, or portion of a patent, must be recorded at the Patent Office, Washington.

Those who desire to have assignments of patents, or licenses drawn in proper form and recorded, will please communicate with MUNN & Co., 261 Broadway, N. Y., stating the full names and residences of the parties, the shares to be conveyed, the title of the invention, and, if already patented, the date of the patent. Also remit five dollars, our charge in full, which also includes the recording of the assignment.

ISSUE OF PATENTS TO TWO OR MORE PERSONS.

WHERE the inventor and his partner wish to obtain a patent which shall stand in both names, the application papers must be made only in the name of the real inventor, and be signed only by him; but the inventor can, at the time that he executes the patent papers, also sign an assignment in favor of his partner, containing a request to the Commissioner of Patents to issue the patent in both names; and thereupon the patent will issue to them jointly, as the assignees of the inventor. The expense of preparing this assignment, including the recording thereof, is five dollars.

When an invention has been made jointly by two or more persons, the application for the patent must be signed by all of the inventors; and the patent will belong to them jointly; but they can, if they wish, execute an assignment, so drawn that the patent, when granted, will belong to the person or persons named in the assignment.

COPIES OF PATENTS.

A PRINTED copy of the full specification, with the drawings, of any patent granted since January 1, 1866, is furnished by MUNN & Co. for 25 cents.

A printed copy of the drawing only of any patent granted prior to January 1, 1866, is furnished by MUNN & Co. for 25 cents. The specifications of patents dated prior to 1866 have not yet been printed; but MUNN & Co. will supply written copies thereof at reasonable cost.

A printed copy of the drawing, with a copy of the claim of any patent of date prior to January 1, 1866, is furnished by MUNN & Co. for one dollar.

In order to save the costs of searching, parties who order copies of patents as above should give the date of the patent and the patentee's name. Send the money with the order, and address MUNN & Co., SCIENTIFIC AMERICAN OFFICE, 261 Broadway, New-York.

☞ If the patentees' name and date of the patent are unknown, we will, if desired, carefully search for the patent described in the order. For the time occupied in this search we make a reasonable charge.

INFRINGEMENTS OF PATENTS.

INFRINGEMENTS occur much less frequently than most people suppose; and in general, unless you have special reason to believe that infringement exists, the best way is not to give yourself trouble about it until some one troubles you.

The general rule of law is, that the first original patentee is entitled to a broad interpretation of his claims. The scope of any patent is therefore governed by the inventions of prior date. To determine whether the use of a patent is an infringement of another generally requires a most careful examination of all analogous prior patents and rejected applications. An opinion based upon such research requires for its preparation much time and labor.

The expense of these examinations, with written opinion, varies from $25 to $100 or more, according to the labor involved. Address MUNN & Co., 261 Broadway, New-York. (See further suggestions about infringements, p. 26.)

RE-ISSUE OF PATENTS.

WHENEVER any mistake, defect, or insufficiency in the claims or specification of a patent are found to exist, a petition for a Re-issue may be filed in the Patent Office, together with new drawings and corrected specifications. A new corrected patent will then be issued, and the old patent canceled. The new patent continues in force during the balance of the term for which the patent was originally granted.

Re-issues may be petitioned for as often as desired, and at any time during the life of the patent. Many of the most valuable patents have been several times re-issued. An original patent may, by Re-issue, be divided up into two or more separate patents.

After the grant of a patent the owner sometimes discovers an error in the description of the invention or in the claims; perhaps the latter are not so broad as they should be, and other persons, taking advantage of the deficiency, vary the article a little, and begin its manufacture. The patentee has a remedy by Re-issue. He petitions to have his patent amended; and if the Commissioner of Patents is satisfied that he is justly entitled thereto, an amended patent will be issued in place of the old patent, and all infringements must then cease.

The usual costs of a simple Re-issue case are $60; of this sum $30 are the Government fees, and $30 the attorney's fees. The latter are increased if the case is complicated. If the Patent Office rejects the application, none of the money paid is refunded.

In order to apply for a Re-issue, please send the original patent to us (MUNN & CO.), with letter stating what changes are desired; also remit $30 on account. We will then immediately proceed with the case. If the original patent has been lost we can procure a certified copy from the Patent Office.

New improvements cannot be added or inserted in a Re-issue; they must be separately covered by an application for a new patent.

We have had thirty-five years' experience in obtaining Re-issues, and shall be happy to give further information upon the subject, to all who wish to have their patents corrected. MUNN & CO., 261 Broadway, New-York.

REJECTED OR DEFECTIVE CASES.

WE (MUNN & CO.) give prompt attention to the prosecution of rejected or postponed cases, that have been prepared by the applicant or other agent. Terms very moderate. Our long experience of thirty-five years enables us to obtain the patent if anybody can; we can soon clear up and put a defective case in proper shape for issue.

Rejected cases may be taken up for prosecution at any time within two years from the date of the last official action. If more than two years have elapsed, a satisfactory reason for the delay must be presented to the Commissioner of Patents; otherwise the case cannot be prosecuted.

PATENTS FOR ORNAMENTAL DESIGNS.

THE laws for the grant of patents for new designs are of the most liberal and comprehensive character, and their benefits may be enjoyed by all persons, without distinction as to nationality.

Foreign designers and manufacturers who send goods to this country may secure patents here upon their new patterns, and thus prevent other makers from selling similar goods in this market.

A patent for a design may be granted to any person, whether citizen or alien, who, by his own industry, genius, efforts, and expense, has invented or produced any new and original design for a manufacture, bust, statue, alto-relievo, or bas-relief; any new and original design for the printing of woolen, silk, cotton, or other fabrics; any new and original impression, ornament, pattern, print, or picture, to be printed, painted, cast, or otherwise placed on or worked into any article of manufacture; or any new, useful, and original shape or configuration of any article of manufacture, the same not having been known or used by others before his invention or production thereof, or patented or described in any printed publication, upon payment of the duty required by law and other due proceedings had the same as in cases of inventions or discoveries.

Patents for designs are granted for the term of three

and one-half years, or for the term of seven years, or for the term of fourteen years, as the said applicant may elect in his application. The patent expires at the end of the term for which it is first granted. No extension.

Design patents are not granted for mechanical or other inventions; but only for ornamental productions. Here the scope of the design patent law is very broad. The patentee of a machine may, in addition to the protection of an ordinary patent, also obtain a design patent upon any new ornaments or ornamental forms used on his device. Authors of new inventions should fortify themselves as far as possible by securing design patents: also by securing trade-mark registration.

The personal presence of the applicant is not necessary in order to obtain a design patent, as the business can be done by correspondence. Those who reside at a distance should send us their names in full, middle name included, together with twelve photographs of the design not mounted. Also remit the fees as above, by draft, check, or postal order. We will then prepare the petition, oath, and specification, and forward the same to the applicant for signature. On their return by him, the papers are filed at the Patent Office, when an official examination is made, and if no conflicting design is found to exist, a patent is issued. The photographs only need to be large enough to represent clearly all the features of the design.

The petition, oath, specification, assignments, and other proceedings in the case of applications for letters-patent for a design are the same as for other patents.

City residents, by calling at our office, can have all the business promptly attended to.

The expenses for design patents are as follows:

Patent for three and a half years, whole expense, $25.

Patent for seven years, whole expense, $30.

Patent for fourteen years, whole expense, $45.

The above includes Government fees and agents' charges.*

Address MUNN & Co., 261 Broadway, New-York.

* [The Government fee is $10 for three and a half years, $15 for seven years, and $30 for fourteen years. Our (MUNN & CO'S) charges are $15. When it is inconvenient for applicants to furnish their own drawings or photographs, we can supply them at a reasonable cost.

HOW TO REGISTER TRADE-MARKS.

THE law provides that any person, firm, or corporation may secure an exclusive right to use a trade-mark by complying with the official regulations of the Patent Office. The whole expense is forty dollars.

Trade-marks already in use, no matter for how long a time, may be registered.

A trade-mark consists of a distinctive or special name or title for an article, or a device, design, or stamp, or combination thereof, applied to merchandise, or the envelopes or packages. The mere business name of a person or firm is not registerable as a trade-mark.

Words that are merely descriptive of the article cannot be registered as trade-marks.

For example, the words "Yellow Washing Soap" cannot be registered. But the same words, if accompanied by a device or picture, such as a lion, might be registered. The words "Gold Pens" could not be registered as a trade-mark for use upon packages of gold pens; but the words "Bonanza Gold Pens" might be registered.

The official rules must be carefully observed. A letter of advice is to be signed by the applicant, together with a written description of the trade-mark, statement and declaration as to use, affidavit thereto; a copy of the trade-mark is to be furnished, drawn or mounted on drawing-paper, with ten copies not mounted.

Trade-marks remain in force for thirty years, and may be renewed for thirty years more. It is unlawful for any person to use any registered trade-mark, or to make such a resemblance thereof as is calculated to deceive. But a trade-mark registered for use upon one particular class of merchandise—hardware goods, for example—will not prevent registration of a similar mark, by another person, for use upon an entirely different class of merchandise—crockery goods, for example.

All the business is speedily done. Registration is generally granted within ten days after the papers are filed. City residents should call at our office. Those who live at a distance should give us, in a letter, the following information:

1. The names of the parties who own the trade-mark, their residence, and place of business.

2. State the class of merchandise and the particular description of goods in connection with which the trade-mark is to be used. For example, the class of merchandise is stationery, and the goods on which the trade-mark is to be used are lead pencils.

3. Describe the particular mode in which the trade-mark has been and is intended to be applied and used. For example, for a trade-mark for sheetings, the statement would be, "The trade-mark is to be printed in blue ink, upon the outside of each piece of sheeting." Or, "The trade-mark is to be printed in black, or red, white, and blue, upon the exterior of a paper wrapper, which is to cover or extend around each package of the goods." In the use of a trade-mark the owner is not confined to such particular colors or precise method of use; but in the application he must set forth, as above, one or more of the intended methods.

4. State whether the trade-mark is already in use, and if so, how long it has been used.

5. Send us twelve copies of the trade-mark.

6. Remit $15 on account. We will then prepare the letter of advice, declaration, and affidavit, for signature by the applicant; after which, on signing the papers, and before they are filed in the Patent Office, the Government fee of $25 must be paid; making the whole cost $40. Should registration be refused, applicant loses this amount.

The right to the use of any trade-mark is assignable by an instrument of writing, and such assignment, to insure its validity, should be recorded in the Patent Office within sixty days after its execution.

Persons desiring to know whether certain words or devices have already been registered as a trade-mark can procure the information without delay by application to the undersigned. Expense of search, five dollars.

Those who desire to secure protection for trade-marks are requested to communicate with MUNN & Co., No. 261 Broadway, New-York, who make it a part of their business to prepare the papers and attend to the application before the Patent Office.

MUNN & Co's offices in Washington are at the corner of F and 7th streets, diagonally opposite the United States Patent Office.

COPYRIGHTS FOR LABELS AND PRINTS.

LABELS and prints of all kinds, for bottles, boxes, and packages, for medicines, compounds, and every description of merchandise, may now be secured by Copyright registration in the Patent Office.

In order to obtain such registration, the applicant should write to MUNN & Co., 261 Broadway, New-York, give his full name, and send *six copies* of the label or print, together with sixteen dollars, which covers all expenses.* On receipt thereof, we will prepare and file the necessary papers in the Patent Office, and forward the Official Certificate of Registration to the applicant.

The patent or registration so obtained lasts for twenty-eight years, and may be then renewed for an additional period of fourteen years. It secures to the proprietor the exclusive right to use the registered label or print during the periods named.

Copyrights for labels and prints may be assigned. The assignments should be recorded.

By the word "*label*," as used in the Act of Congress, is meant a slip or piece of paper, or other material, to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, and bearing an inscription (not a trade-mark), as, for example, the name of the manufacturer, or the place of manufacture, the quality of goods, directions for use, etc.

By the word "*print*," as used in the said Act, is meant any device, picture, word or words, figure or figures (not a trade-mark), impressed or stamped directly upon articles of manufacture, to denote the name of the manufacturer, or place of manufacture, style of goods, etc.

But no such print or label can be registered unless it properly belong to an article of commerce, and be as above defined; nor can the same be registered as such print or label when it amounts in law to a technical trade-mark.

Printers and others, who design or arrange labels, may register the same as their own productions, and thus secure the exclusive right to sell and print such labels.

* The Government fee is $6, and our charge (MUNN & Co'S) is $10.

COPYRIGHTS FOR BOOKS, PAMPHLETS, CHARTS, PICTURES, AND ART WORKS.

ANY citizen or resident of the United States may obtain a copyright who is the author, inventor, designer or proprietor of any book, map, chart, dramatic or musical composition, engraving, cut, print, or photograph or negative thereof, or of a painting, drawing, chromo, statue, statuary, and of models and designs, intended to be perfected as works of the fine arts.

A copyright is not valid unless the title or description is recorded in the library of Congress, *before the publication of the work.*

Those who desire to obtain copyrights are requested to communicate with MUNN & CO., No. 261 Broadway, New-York, and send us *the title* of the book, print, photograph, or article. We will then cause the title to be printed, and recorded at Washington, as by law required. The official certificate of copyright will then be immediately sent to our client. Our charge to attend to the business of obtaining a copyright is $5, which please remit with the title. Copyrights are filed in advance of the issue of the work; therefore we only need to receive from the applicant *the intended title* of his production, not the work itself.

If a copyright is desired for a painting, drawing, chromo, statue, statuary, or model or design for a work of art, send us the intended title, and also a brief description thereof and $5.

Copyrights are granted for the term of twenty-eight years, and may be renewed for fourteen additional years, if the renewal is filed within six months before the expiration of the first term.

Copyrights may be assigned; the assignment must be recorded by the Librarian of Congress.

Foreigners who are not residents of the United States cannot obtain copyrights; but if residents, they may obtain copyrights.

Labels for goods, bottles, etc., may be copyrighted. Cost, $16. See page 23. But machines and inventions cannot be copyrighted.

Address MUNN & CO., 261 Broadway, New-York, for further information.

QUESTIONS AND ANSWERS.

OUR extended experience of over thirty years in connection with THE SCIENTIFIC AMERICAN makes our establishment a sort of factotum for the receipt and reply to questions of all kinds. Thousands of these questions are answered, generally, in THE SCIENTIFIC AMERICAN, to which everybody who desires to be well informed should subscribe. There are still other questions of a special or personal nature to which written replies by mail are desired by our correspondents.

"Myself and friend wish to join in manufacturing a patented article, and form a company. How shall we proceed? How ought the patent deeds to be arranged?"

"Can a patent be attached and sold for debt by sheriff, like other personal property?"

"Suppose three parties own each one-third of a patent. Questions: (1) Is not each owner entitled to one-third of the profits made by the other owners? (2) Can one owner of a patent make, sell and use, and grant rights to others, without consent and without accounting to the other owners?"

"If I assign a patent in full, with the verbal understanding that the purchaser is to make certain payments, am I not entitled to recover back my patent if he fails to pay? If not, what is my remedy?"

"I send you herewith copy of an assignment of a patent made to me. Please state whether it is correctly drawn."

"I own the right for the State of New-York for the washing-machine patented by John Doe, July 4, 1876. Question: Has the original patentee, or other person, the right to make the machines in some other State and fill orders for machines to be used in this State?"

To questions like the above, or those of a kindred nature, we are always ready and willing to send brief written replies, provided correspondents are thoughtful enough to enclose a small fee in recognition of the service. This should not be less than from one to five dollars. If we find that we are unable to give the information requested, we return money. Address MUNN & CO., 261 Broadway, N. Y. Questions relating to *patent infringements* cannot be thus answered; see pages 17 and 26.

WILL IT PAY TO TAKE A PATENT?

ON page 3, readers are informed that we are always happy to give them our opinion as to the novelty of their inventions, *without charge*. But some persons, when they send for such information, add many other inquiries, difficult to answer, and not included in our gratuitous invitation; as for example: "What is it worth? Who will buy? Will it pay? Does it infringe? Does it conflict with B's patent? If you will guarantee it does not infringe, I will apply for a patent," etc.

The following hints may prove useful as a sort of general answer.

"What is it worth? Who will buy?" As a general rule, an invention is worth little or nothing until the patent is obtained; and until then, no one is likely to buy. Therefore the first thing to be considered, the first step to be taken, is to *obtain the patent.*

"Will it pay?" As a general rule, every patentable improvement will more than repay the small cost of taking out the patent. The sale of a single machine, or of a single right of use, will often bring back more than the whole outlay for the patent. The extent of profit frequently depends upon the business capacity of the inventor or his agent. One man by his activity will make a fortune from an unpromising improvement, while another, possessing a brilliant invention, will realize little or nothing, owing to incompetence.

Does it Infringe? To answer this in each individual case requires the special search mentioned on page 17. Infringement consists in the use, sale, or manufacture of something already patented, whereby the patentee suffers injury.

It is not an infringement to make a patented article simply for private experimental purposes, with a view to test the sufficiency of the patent, or to improve upon the patent, or for other purposes of private investigation. It is not an infringement to take out a patent for an invention which is an improvement on a previous patent. It is not an infringement to own, to buy, or to sell any patent. It is not an infringement to sell rights under any patent, whether town, county or state rights, or licenses.

All good improvements are worth patenting, even if their use should be found to infringe a prior patent. Only a few, comparatively, of the large number of patents issued prove to infringe; and the infringing device is sometimes worth more than the patent with which it conflicts. Patentees of conflicting inventions can usually make satisfactory arrangements with the owners of the prior patents; it is obviously to the interest of prior patentees to have their patents used as extensively as possible. The princely revenue of Howe, the inventor of the sewing-machine, was about $500,000 annually, derived chiefly from two infringing patentees, paying him a small royalty on each machine. The net profits divided among the owners of one of these infringing patents — the celebrated Wheeler and Wilson — are reported to be more than $1,000,000 a year. The profits of the other, the Singer Manufacturing Co., are reported at from $2,000,000 to $3,000,000 a year. I. M. Singer, author of the Singer Sewing-Machine, left, at his decease, an estate valued at thirteen millions of dollars.

HOW TO INVENT.

THE way to invent is to *keep thinking;* and to thought add *practical experiments.* Examine things about you, and study how to improve them. Keep your eyes and ears open, ask questions, be a continual seeker after useful information. Those who do this, soon acquire a knowledge of the sciences, and insensibly become educated.

To avoid waste of time in reproducing old devices, the inventor should be well posted in regard to inventions that have already been made. He should also be informed as to the particular classes of devices in which improvements are most demanded. For this purpose, an attentive study of THE SCIENTIFIC AMERICAN will be almost indispensable. This splendid newspaper is published weekly, furnishes thousands of suggestions and subjects for invention, supplies the mind with knowledge, gives the latest information concerning the progress of new discovery, with elegant engravings. $3.20 a year. MUNN & CO., 261 Broadway, Publishers. Send 10 cents for a specimen copy, or buy at news store.

HOW TO SELL PATENTS.

THE first requisite is to make the merits and importance of the improvement *publicly known*. This may be done in various ways: By advertisements in newspapers, by cards, circulars, pamphlets, etc., by local and traveling agents. Some persons appoint agents in each town or county, giving them, as commission, a liberal portion of the net proceeds for the sale of rights, or of the receipts for machines sold.

One of the most comprehensive and immediate methods of bringing the merits of an invention before the public, is to have it noticed and engraved in THE SCIENTIFIC AMERICAN. This paper, published weekly, is seen by probably not less than *three hundred thousand readers*, who comprise all of the most intelligent persons of scientific and mechanical acquirements in the country. The fact of publication in THE SCIENTIFIC AMERICAN is a passport to their attention and favor. "Yes, that is a good invention. I have seen it illustrated in THE SCIENTIFIC AMERICAN, and understand its construction. I advise you to purchase the right." We suppose that more patents are sold upon such advice than by all other agencies and means put together.

The splendid engravings which adorn our paper are prepared by the most talented artists. We are always glad to illustrate new and useful inventions in THE SCIENTIFIC AMERICAN, and, owing to the interest which our readers take in such novelties, we make the expense to the patentee as low as possible—generally but very little above the actual cost to us.

If any one will take the trouble to count the probable cost to him of printing and circulating, by mail, a mass of circulars, containing an engraving and description of his invention, and then compare that cost with the insignificant figure he would have to pay us to get up the same cut and description, and *print and circulate forty thousand copies thereof in* THE SCIENTIFIC AMERICAN, he will appreciate the marvelous economy offered by our journal. The circular plan would cost the patentee more for the *white paper alone*, than we (MUNN & CO.) should charge for the entire job. After publication, the engravings are sent

to the owner, who can then use them for other papers, circulars, etc.

In estimating the value of patent rights for different States, counties, etc., one very common method is to fix the price with reference to the amount of population.

The license and royalty plan is often the most profitable method of employing patents. This, in effect, involves a sort of contract between a patentee and a partner or manufacturer, by which the latter, in consideration of license to make the thing, agrees to pay to the patentee a specified sum upon each article made or sold. The patentee of the chimney-spring, now so commonly used to fasten glass chimneys upon lamps, was accustomed to grant licenses to manufacturers on receiving a royalty of a few cents per dozen. His income was at one time reported to be fifty thousand dollars a year from this source. Howe, the inventor of the sewing-machine, received a royalty of from five to ten dollars on each machine, and his annual income was estimated at five hundred thousand dollars. Goodyear, the inventor of vulcanized rubber, divided his patent up into many different rights, licensing one company for manufacturing rubber combs, another for hose-pipes, another for shoes, another for clothing, another for wringers, etc. Each company or partner paid a tariff. Lyall, inventor of the continuous loom, in like manner divided his patent into many different rights; one company weaves carpets, another corsets, another bags, another sheetings.

In all cases where an invention can be advantageously represented by engravings, the patentee should have them made, to be used on billheads, letters, pamphlets, and circulars. He should, however, remember that it is bad economy to have poor pictures. A bad cut conveys a bad idea of the merits of an invention; on the contrary, a good bright, artistic engraving is a wonderful aid in selling patents.

Additional information concerning the sale of patents, forms for deeds, licenses, etc., full census of the United States by counties, table of occupations showing the number of people in each occupation, etc., may be found in the *Scientific American Reference Book*, for contents of which see page 46.

STATE LAWS CONCERNING PATENTS.

ALL laws of State Legislatures that interfere with the free sale of patent rights, such as the requiring of the agent or patentee to file copies of patents, take licenses, procure certificates, comply with forms, or which purport to release the payee of ordinary notes of hand given for patents, or which require any special words concerning a patent to be written on the face of the note—all such State laws are void and unconstitutional.

All State judges, sheriffs, or other State officials, who, under pretence of any such State laws, undertake to stop, arrest, or interfere with patentees or their agents, in the free sale of patents, make themselves liable in damages and other punishment, before the United States Courts.

If any patentee or owner of a patent right, or his agent, is thus interfered with, he should resist, and apply to the nearest Judge of a United States Court for redress.

The United States Court, in the case of John Robinson, held that this kind of State legislation is unauthorized, that property in inventions exists by virtue of the laws of Congress, and that no State has a right to interfere with its enjoyment, or annex conditions to the grant.

If the patentee complies with the laws of Congress on the subject, he has a right to go into the open market anywhere within the United States and sell his property.

But a distinction should be kept in mind between the selling of patents and patent privileges, and the selling of goods or manufactured articles. All who sell goods, whether patented or not patented, must conform to the local and State laws relating to goods.

Decisions of the United States Courts on these points are given in the SCIENTIFIC AMERICAN SUPPLEMENT, No. 25. Price 10 cents. To be had at THE SCIENTIFIC AMERICAN Office, 261 Broadway, and at any news store.

THE patent and all its rights are under the owner's control; and after a patent is issued, it is not subject to additional payments or to taxes of any kind, whether national, state or local.

ENGRAVINGS AND ADVERTISING.

EXPERIENCE shows that the illustration of inventions by engravings is one of the best means ever devised for the introduction of inventions and the sale of patents. As a means for the circulation of such illustrations, nothing can compare in value with THE SCIENTIFIC AMERICAN. Every engraving published therein goes before not less than *three hundred and fifty thousand persons*.

All good business men, before spending their money upon advertising, are in the habit of inquiring about the character and extent of circulation enjoyed by the journal that solicits their patronage. In this respect the publishers of THE SCIENTIFIC AMERICAN challenge the closest scrutiny; the facts will show that their terms are much lower than those of any other journal of the same class in proportion to the extent of circulation.

Parties who desire to have their machines illustrated, can address the undersigned, who are also prepared to send artists to make sketches of manufacturing establishments, with a view to their publication in THE SCIENTIFIC AMERICAN. MUNN & CO., 261 Broadway, New-York.

LAST CENSUS OF THE UNITED STATES—1880.

Alabama	1,262,344	Minnesota	780,806	W. Virginia	618,193
Arkansas	802,564	Mississippi	1,131,592	Wisconsin	1,315,480
California	864,686	Missouri	2,168,804	Total States	49,367,361
Colorado	194,649	Nebraska	452,432	TERRITORIES.	
Connecticut	622,683	Nevada	62,265	Dis. Columbia	177,638
Delaware	146,654	N. Hampshire	346,984	Arizona	40,441
Florida	266,566	New Jersey	1,130,892	Dakota	135,180
Georgia	1,538,983	New-York	5,083,810	Idaho	32,611
Illinois	3,078,769	N. Carolina	1,400,000	Montana	39,157
Indiana	1,978,362	Ohio	3,198,239	New Mexico	118,430
Iowa	1,624,463	Oregon	174,767	Utah	143,907
Kansas	995,966	Pennsylvania	4,282,786	Washington	75,120
Kentucky	1,648,599	Rhode Island	276,530	Wyoming	20,788
Louisiana	940,263	S. Carolina	995,706	Total Terre	783,272
Maine	648,945	Tennessee	1,542,463	Total States	49,367,361
Maryland	934,632	Texas	1,592,574	Grand Total	50,150,633
Massachusetts	1,783,086	Vermont	332,286		
Michigan	1,636,335	Virginia	1,512,203		

FOREIGN PATENTS.

THE American patent law contains a special provision in favor of the inventor who desires to secure patents in other countries, namely: It provides that after a home patent *is allowed*, the application may remain in the secret archives of the Patent-Office for a period not exceeding *six months*, thus enabling the inventor to arrange for his foreign patents *in advance of all other persons*. But if the inventor permits the American patent to issue before he has applied for foreign patents, he loses the opportunity of obtaining them; for in most countries the patent is invalid if previously patented elsewhere; the inventor is thus deprived of the credit and emoluments that he might easily have secured. Many valuable patents have thus been lost to their inventors in European countries.

Such is the prestige and fame for ingenuity which Americans enjoy in Europe that good American inventions are in demand, and if proper steps are taken, may be quickly introduced and rendered profitable. We suggest to American inventors that they endeavor to avail themselves *of every advantage that they can* in this direction.

The expenses of procuring patents in Europe having been *greatly reduced*, the obstacle of cost no longer stands seriously in the way of the American patentee. If, however, he is unable to meet the expense, he should find a reliable partner who will pay the costs and share the profits. Arrangements of this kind have in many cases proved highly profitable to all concerned. Agreements with one partner for England, with another for France, and so on, might prove advantageous. See form of contract for this purpose, on next page.

The following schedule shows the best countries in which to take patents:

	PATENT APPLICATION COSTS.	POPULATION.
Canada	$ 50	5,000,000
England	75	40,000,000
Germany	100	45,000,000
France	100	45,000,000
Belgium	100	6,000,000
Spain	100	18,000,000

The Spanish patent includes Cuba, Porto Rico, Phillipines, and all the Spanish Colonies.

In the following countries the costs to apply for patents are: Austria, $100; Italy, $150; Russia, $300; Sweden, $100; Norway, $100; Portugal, $400; British India, $400; Australian and other British Colonies, each about $300.

Remit to our order the amounts above stated, and we will immediately send you the necessary forms for signature. MUNN & CO., Solicitors of American and Foreign Patents, Proprietors of THE SCIENTIFIC AMERICAN, 261 Broadway, New-York.

Form of an Agreement between the Inventor and one or more Partners, concerning Foreign Patents.

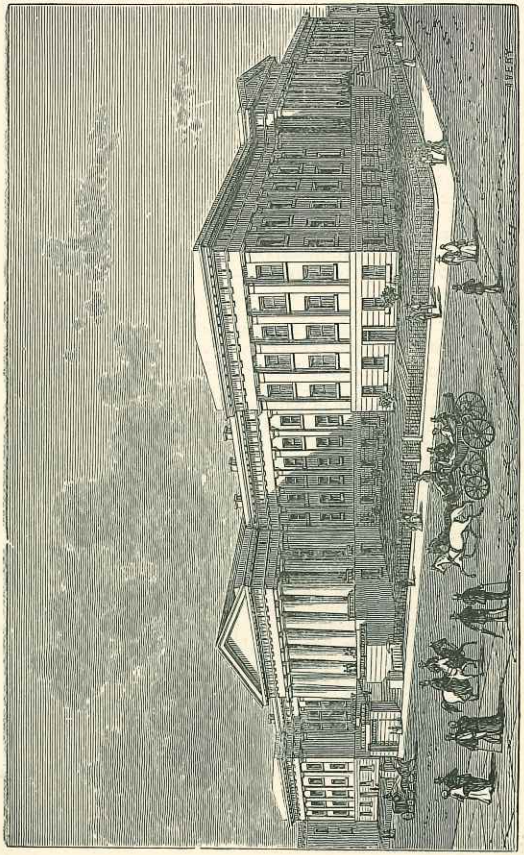
Whereas, I, Richard Roe, of Wyoming, County of Mohawk, State of New-York, have invented a new and useful improvement in Musical Instruments, for which my application for Letters Patent of the United States has been allowed;

And whereas, John Doe, of the above-named place, hath advanced to me the sum of one hundred dollars, to be applied toward the securing of Letters Patent for the said invention in France, through the agency of Messrs. MUNN & CO., of New-York:

Now this Indenture witnesseth: That, for and in consideration of said payment to me made, I do hereby stipulate and agree, for myself, my heirs and assigns, that all the net receipts in any manner arising from the said French patent, shall be paid over and delivered unto the said John Doe, his heirs or assigns, until the said sum by him advanced hath been repaid with lawful interest; and that thereafter the said John Doe, his heirs and assigns, shall have and receive one-tenth of all the net receipts in any manner arising from the said French patent for and during the entire remaining term for which said French patent is or may be granted.

Witness my hand and seal, this 1st day of January, A. D. 1879.

In presence of RICHARD ROE. (SEAL.)
WILLIAM JOE.



THE UNITED STATES PATENT OFFICE, AT WASHINGTON.—(See page 44).

THE BASIS OF INDUSTRY.

In the practical application of new and useful improvements, America leads the world. According to an estimate made by the Commissioner of Patents, from six to seven-eighths of the entire manufacturing capital of the United States, or upward of six thousand millions of dollars, probably is based upon Patents, either directly or indirectly. A very large proportion of all patents prove remunerative, which is the reason why so many are applied for, and so many millions of capital invested in their working. "But all patents," says an able writer, "are not productive; neither are all farms; all men are not rich; all mines are not bonanzas.

"There is scarcely an article of human convenience or necessity in the market to-day, that has not at sometime or other been the subject of a patent, either in whole or in part. The sale of every such article yields the inventor a profit. If we purchase a box of paper collars, a portion of the price goes to the inventor; if we buy a sewing-machine, the chances are that we pay a royalty to as many as a dozen or fifteen inventors at once. Indeed, the field is so vast and the number of profitable patents so great that it would be far preferable to undertake a recapitulation of those patents which are not profitable than those which are."

HOW MUCH ARE PATENTS WORTH.

In an official report, a chief examiner of the Patent Office says: "A patent, if it is worth anything, when properly managed, is worth and can easily be sold for from ten to fifty thousand dollars. These remarks only apply to patents of ordinary or minor value. They do not include such as the telegraph, the planing-machine, and the rubber patents, which are worth millions each. A few cases of the first kind will better illustrate my meaning:

"A man obtained a patent for a slight improvement in straw-cutters, took a model of his invention through the Western States, and after a tour of eight months returned with forty thousand dollars in cash, or its equivalent.

"Another inventor obtained extension of a patent for

a machine to thresh and clean grain, and sold it in about fifteen months for sixty thousand dollars. A third obtained a patent for a printing-ink, and refused fifty thousand dollars, and finally sold it for about sixty thousand dollars.

"These are ordinary cases of minor invention, embracing no very considerable inventive powers, and of which hundreds go out from the Patent Office every year. Experience shows that the most profitable patents are those which contain very little real invention, and are to a superficial observer of little value."

THE PALACE OF LAWS.

OUR frontispiece (page 2) shows the capital of the United States at Washington, the finest edifice in the New World. It may be justly styled the PALACE OF LAWS, for within its precincts the statutes of the nation are enacted and expounded. Here are framed the patent laws and kindred ordinances for the encouragement of authors and inventors.

The corner-stone of the Capitol was laid by the illustrious Washington, on the 18th day of September, 1793. The building was opened for the meeting of Congress November 17th, 1800. Enlargement and new dome completed in 1867. The edifice fronts the east, is 751 feet long, 348 feet wide, and covers 3½ acres; court-yards 3½ acres; in all 7 acres. The predominant material of the exterior is white marble. The dome is of cast-iron, 135½ feet in the largest diameter, and 287½ feet high, surmounted by a statue of Liberty 19½ feet high. The interior of the dome forms a remarkable circular chamber, or rotunda, 96 feet in diameter, 180 feet high. One thousand gas jets, flashed by electricity, illuminate the interior by night. The walls of the rotunda are adorned with historical paintings by eminent artists. The Senate Chamber, House of Representatives, Supreme Court Rooms, and other apartments, are splendidly decorated. The halls are lined with polished marble from every State in the Union. Frescoes, paintings and sculptures abound. The front porticoes are supported by one hundred Corinthian columns of white marble. The cost of the Capitol building was thirteen millions of dollars.

MULTUM IN PARVO.

ONE of our correspondents writes to know if we will not be so good as to send a messenger to an address which he gives, up town—distance two and a half miles from our office — to make certain inquiries for him. It would require one and a half hours' time to do the errand, and not a stamp enclosed. Another wants us to write a letter, and tell him where to get a combined thermometer and barometer. Another "Will you be good enough to give me the names and addresses of several of the makers of the best brick-machines?" Another wants water-wheels. Another threshing-machines. Each writer desires our written opinion as to which is the best device, with our reasons, and not one is thoughtful enough to inclose a fee, or reflect that to answer his request will consume considerable of our time. Another party wishes us to write to him the recipe for making ornaments out of coal-tar, where he can buy the mixture ready for use, and how much checker-men will sell for in the New-York market. Mr. A. wants us to send him a good recipe to make his hair grow and prevent dandruff. Mr. B. desires us to write him by return mail and state what pressure per square inch will first-class steel pipes stand, ⅝ inch outside diameter, ⅛ thick, making ⅜ inside. Mr. C. wishes us to write and tell him how to prepare a fluid which, when a stick or bit of paper is dipped therein, and then exposed to the air, will ignite like a match. Mr. D. wants us to tell him of some valuable invention, of which he can buy the patent cheap, that would be suitable for him to take to sell on his travels out West, by towns, counties, etc. Others want us to put them in communication with some person who will purchase an interest in their inventions, or manufacture for them, or furnish this or that personal information. We are at all times happy to serve our correspondents, but if replies to such personal matters are expected, a small fee, say from one to five dollars, should be sent, according to the nature or importance of the case. In most cases we can furnish the information requested; but if unable to do so, we return the money. Address MUNN & CO., 261 Broadway, New-York.

THE SCIENTIFIC AMERICAN OFFICES.

OUR engraving (on page 6) shows the location of THE SCIENTIFIC AMERICAN Office, New-York, No. 261 Broadway. Our premises front on Broadway and the City Hall Park, on the east of which is Printing-House Square. This locality is the head-quarters of the city newspaper fraternity and the business center of the metropolis. The large building at the left is the United States Court-House and Post-Office, a magnificent structure of granite, recently completed at a cost of about eight millions of dollars. The other side of this building fronts on the famous thoroughfare of Broadway. This is the largest local Post-Office on the continent, and the extent of postal transactions here carried on is enormous. In the upper part of the building are the splendid court-rooms and offices pertaining to the United States Court, Marshal's Offices, and great Law Library. The principal lines of city street railways all converge at or near the Post-Office, and the stages pass directly in front of the door-way of THE SCIENTIFIC AMERICAN. On the Park, opposite our offices, are those of *The Times*, *the World*, *The New-York Observer*, and other celebrated newspapers. Close by is *The Tribune* office, with its tall tower, and *The Sun* office. The large building seen at the head of the square is the *Zeitung* office. At this point we see the entrance-way to the great Suspension Bridge between New-York and Brooklyn, over ten years in construction, at a cost of about twenty millions of dollars.

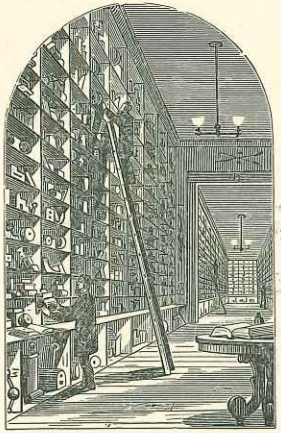
THE SCIENTIFIC AMERICAN offices occupy the first floors of the large building first mentioned.

The interior of the main office of THE SCIENTIFIC AMERICAN, New-York, has several large and splendid apartments. It is here that subscriptions and advertisements for THE SCIENTIFIC AMERICAN are received, and much of our business done in connection with our Patent Agency.

In addition to the transaction of an immense amount of patent business, which comes to us by mail and express, large numbers of authors and inventors prefer to come in person to our offices to explain the merits of their improvements.

In carrying on our extensive patent business we aim to conduct it in the most expeditious and systematic manner. We are assisted by the most experienced examiners and specification writers. The finest mechanical draughtsmen in the country prepare our drawings.

Adjoining our main business office, on the same floor, are a series of connected apartments occupied by our examiners and specification writers, draughtsmen, and copyists. This section of our establishment extends from Broadway and fronts on Warren street. All correspondence relating to patents is carefully preserved for a given time in large fire-proof safes of extra thickness.



THE MODEL-ROOM.

All drawings of pending patent cases are likewise preserved in similar safes, specially made for this purpose

The utmost care is taken to guard the privacy and preserve the safety of the many thousands of inchoate inventions committed to our care; and we may here mention with satisfaction the fact that during our long professional career of over thirty years, not one of our clients has ever found his confidence in us misplaced.

The remaining divisions of our main establishment in New-York are the engraving-room and the editorial rooms, where the interesting matter that fills the pages of THE SCIENTIFIC AMERICAN is prepared.

The printing of THE SCIENTIFIC AMERICAN is done in a neighboring building, where several large steam

presses are kept in constant motion, day and night, during the greater part of each week, to work off our large edition. After leaving the press the sheets pass through a folding-machine, are by machinery then trimmed, and then enveloped for the mail.

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OUR BRANCH OFFICE IN WASHINGTON.

WE have a large office in Washington, located at the corner of F and 7th streets, diagonally across the street from the Patent Office, as shown in the engraving, p. 14.

The first building on the right is the United States Patent Office; the next on the same side is the General Post Office; on the left stands THE SCIENTIFIC AMERICAN office. Our location is especially convenient for the transaction of business. We employ at Washington a corps of trained assistants, part of whom make it their exclusive duty to watch and assist the progress of our cases before the Patent Office. For these services we make no extra charges.

Another division of our helpers in Washington devote themselves to the preliminary examination of inventions —a matter that is explained more fully on page 11.

It is to the systematic method and abundant supply of trained helpers, personally supervised by the proprietors, that the long-continued prosperity and remarkable success of THE SCIENTIFIC AMERICAN Patent Agency are due.

DISTINGUISHED AMERICAN INVENTORS.

BENJAMIN FRANKLIN; b. Boston, 1706; d. 1790; at 12, printer's apprentice, fond of useful reading; 27 to 40, teaches himself Latin, etc., makes various useful improvements; at 40 studies electricity; 1752, brings electricity from clouds by kite, and invents the lightning-rod.

ELI WHITNEY, inventor of the cotton-gin; b. Westborough, Mass., 1765; d. 1825; went to Georgia 1792 as teacher; 1793 invents the cotton-gin, prior to which a full day's work of one person was to clean by hand one pound of cotton; one machine performs the labor of five thousand persons; 1800 founds Whitneyville, makes firearms, by the interchangeable system of the parts.

ROBERT FULTON; b. Little Britain, Pa., 1765; d. 1825; artist painter; invents steamboat 1793; invents submarine torpedoes 1797 to 1801; builds steamboat in France 1803; launches passenger-boat Clermont at N. Y. 1807, and steams to Albany; 1812, builds steam ferryboats; 1814, builds first steam war-vessel.

JETHRO WOOD, inventor of the modern cast-iron plow; b. White Creek, N. Y., 1774; d. 1834; patented the plow 1814. Previously the plow was a stick of wood, plated with iron. Lawsuits against infringers consumed his means. Secretary Seward said: "No man has benefited the country pecuniarily more than Jethro Wood, and no man has been as inadequately rewarded."

THOMAS BLANCHARD; b. 1788, Sutton, Mass.; d. 1864; invented tack machine 1806; builds successful steam carriage 1825; builds the stern-wheel boat for shallow waters, now in common use on Western rivers; 1843 patents the lathe for turning irregular forms, now in common use all over the world for turning lasts, spokes, ax-handles, gun-stocks, hat-blocks, tackle-blocks, etc.

ROSS WINANS, of Baltimore; b. 1798, N. J.; author of many inventions relating to railways; first patent 1825; he designed and patented the pivoted, double-truck, long passenger cars now in common use. His genius also assisted the development of railways in Russia.

CYRUS H. MCCORMICK, inventor of harvesting machine; b. Walnut Grove, Va., 1809; in 1851 he exhibited his invention at the World's Fair, London, with practical success. The mowing of one acre was one day's man's

DISTINGUISHED AMERICAN INVENTORS.

work ; a boy with a mowing-machine now cuts 10 acres a day. Mr. McCormick's patents made him a millionaire.

CHARLES GOODYEAR, inventor and patentee of the simple mixture of rubber and sulphur, the basis of the present great rubber industries throughout the world; b. New Haven, Conn., 1800; in 1839, by the accidental mixture of a bit of rubber and sulphur on a red-hot stove, he discovered the process of vulcanization. The Goodyear patents proved immensely profitable.

SAMUEL F. B. MORSE, inventor and patentee of electric telegraph ; b. Charlestown, Mass., 1791 ; d. 1872 ; artist painter ; exhibited first drawings of telegraph 1832 ; half-mile wire in operation 1835 ; caveat 1837 ; Congress appropriated $30,000, and in 1844 first telegraph line from Washington to Baltimore was opened ; after long contests, the courts sustained his patents, and he realized from them a large fortune.

ELIAS HOWE, inventor of the modern sewing-machine; b. Spencer, Mass., 1819; d. 1867; machinist ; sewing-machine patented 1846. From that time to 1854 his priority was contested, and he suffered from poverty, when a decision of the courts in his favor brought him large royalties, and he realized several millions from his patent.

JAMES B. EADS ; b. 1820 ; author and constructor of the great steel bridge over the Mississippi at St. Louis, 1867, and the jetties below New Orleans, 1876. His remarkable energy was shown in 1861, when he built and delivered complete to Government, all within 65 days, seven iron-plated steamers, 600 tons each; subsequently other steamers. Some of the most brilliant successes of the Union arms were due to his extraordinary rapidity in constructing these vessels.

JAMES LYALL, N.Y. City; b. 1836 ; invented a simple mixture, 1863, for enameling cloth for knapsacks, etc., from which he realized a fortune ; in 1868 patented the positive-motion loom, which patent was exceedingly profitable ; is the founder and manager of several great establishments ; at one of these, 23d street, N. Y., 4,000 hands are employed. This loom increases the production and lessens the cost of woven fabrics. A single loom, attended by one girl, turns out 320 square yards in 10 hours, the fabric being 8 yards or more wide.

THE PATENT OFFICE AT WASHINGTON.

WE present three engravings illustrative of the Patent Office. In the picture given on page 14, the first building seen at the right is the northerly front of the Patent Office, on Seventh Street, diagonally opposite THE SCIENTIFIC AMERICAN Patent Agency. The situation of our premises is so remarkably convenient, that we are enabled to transact a large amount of patent business very quickly. As all models, drawings, specifications, trade-marks, records of assignments, etc., are deposited in the Patent Office, we have access thereto, on behalf of our clients, by simply stepping across the street.

Next to the Patent Office, on the right, directly opposite THE SCIENTIFIC AMERICAN, is the General Post Office. Here the Postmaster General sits, and the postal service of the country is regulated. The Post Office building is 304 feet long, 204 feet wide, Corinthian style, of white marble.

The engraving on page 34 shows a full exterior view of the Patent Office, which is one of the finest edifices in Washington. It is of the Doric order of architecture, 433 feet long, 331 feet wide, 75 feet high. The collection of models of inventions here gathered is very remarkable, the aggregate number being over two hundred thousand. Nearly twenty thousand new models are sent to the Patent Office each year.

On page 10 we give an interior view of one of the great model-rooms of the Patent Office, nearly 400 feet long, paved with marble. The models, it will be observed, are deposited in glass cabinets upon the main floor and galleries. The model-rooms are open to the public from 9 A. M. to 3 P. M.

No printed statement or recommendation that we could present will convey to the mind of the visitor so adequate and truthful an impression of the magnitude and wonderful success of our (MUNN & CO'S) labors in procuring patents for inventors, as a walk through the Patent Office. The visitor beholds tier upon tier of models, rising on both sides from floor to ceiling, occupying a main portion of the entire building, and finds on examining the records, that every cabinet every class of invention, is crowded with models sent from THE

SCIENTIFIC AMERICAN Patent Agency, and that a very large portion of all the patents granted are to our (MUNN & CO'S) clients.

The number of persons generally employed at the Patent Office is between four and five hundred. The principal officers are the Commissioner of Patents, who is the executive, the Assistant Commissioner, and seventy examiners. Their aggregate salaries amount to about one hundred and fifty thousand dollars a year. One hundred and thirty thousand dollars a year, nearly, are paid into the Patent Office by THE SCIENTIFIC AMERICAN Patent Agency alone.

THE LARGEST AND BEST.

NOW and then, professional rivals, jealous or unreasonable persons, will be found who rail about MUNN & CO., usually because we transact so much business and make small charges. These carpers falsely allege that they can do the business better, afford more time.

Everybody knows, however, that the best service and the most reasonable rates are generally furnished by large, well-conducted establishments, and the patent agency business is no exception. We have a staff of trained assistants and draughtsmen; we give to every case careful study, experienced care, and *abundance of time;* we have helpers at Washington, who make it their special duty to watch over and assist the progress of our cases before the Patent Office, give explanations, and see that the best claims are allowed. No extra charges are made for these services. Our efforts are usually successful and give general satisfaction. For many years we have secured more patents for inventors, and done more patent business than the combined business of the majority of the four hundred patent agents in this country. The largest proportion of all the most valuable and successful patents now existing were obtained through THE SCIENTIFIC AMERICAN Patent Agency.

The only countries in which Americans may file Caveats for inventions are the United States and Canada.

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